

REMARKS

Claims 1-3, 5-16, 18-19, 22-25, 45-46, 52, and 208-241 are pending. Claims 208-220 have been withdrawn from consideration. Claims 4, 17, 20-21, 47-51, and 53-207 have been cancelled. Claims 1, 3, 5, 8-9, 16, 18-19, and 45 have been amended to more particularly point out and distinctly claim the invention. New claims 221-241 have been added. No new matter has been added.

Election/Restriction

Applicants have amended independent claims 1 and 45 to more particularly point out and distinctly claim the invention and believe that claims 208-220 contain only limitations of the newly amended claims. Applicants request that the Examiner rejoin claims 208-220. However, in the event that the Examiner maintains the restriction, Applicants request that the Examiner clearly identify which limitations are deemed different.

35 U.S.C. § 112 Rejections

The Examiner has rejected claims 1-3, 5-16, 18, 19, 22-25, 45, 46, and 52 under 35 U.S.C. § 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections.

In light of the amendment, the Examiner's rejections have become moot. Nonetheless, the following remarks regarding the Examiner's rejections and the amended claims may be helpful to expedite prosecution. The use of "means for" terminology usually

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invokes 35 USC 112, sixth paragraph, in which means-plus-function language "shall be construed to cover the corresponding structure ... described in the specifications and equivalents thereof." See MPEP 2181 section II and section III.

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 1-3, 5-16, 18, 19, 22-25, 45, 46, and 52 under 35 U.S.C. § 112.

35 U.S.C. § 102 Rejections

The Examiner has rejected claims 1-3, 5-11, 15, 18 and 22-25 under 35 U.S.C. § 102(b) as being anticipated by Bergman et al., US Patent No. 5,235,995 ("Bergman"). In light of the amendment, the Examiner's rejections have become moot. Nonetheless, the following remarks regarding the Examiner's rejections and the amended claims may be helpful to expedite prosecution.

Claim 1 relates to an apparatus for wet processing the device side of individual wafers, comprising: an acoustic energy generator; a wafer bracket for positioning a wafer having a device side and a non-device side over the acoustic generator, wherein the device side of the wafer is distal to the acoustic generator and the non-device side of the wafer is proximate to the acoustic generator; a first

liquid dispenser for flowing a first liquid between said acoustic energy generator and said wafer; wherein the first liquid is in **extensive contact** with **both** the acoustic generator and the wafer, providing the predominant means of **transferring acoustic energy** from the acoustic generator to the **non-device side of the wafer**; a **second liquid dispenser** for flowing a processing liquid onto said **device side** of the wafer; and wherein the acoustic energy irradiating the non-device side of the wafer is transferred to the device side of the wafer having a **frequency and intensity** at the **device side of the wafer** to provide a substantive improvement in the **cleaning performance of the processing liquid** on the device side of the wafer, while also minimizing the associated risk of **damage** to the devices on the wafer due to the sonic energy acting on the device side of the wafer.

In contrast, Bergman fails to disclose or suggest the device side of the wafer is **distal to the acoustic generator**; wherein the first liquid is in **extensive contact** with **both** the acoustic generator and the wafer, providing the predominant means of **transferring acoustic energy** from the acoustic generator to the **non-device side of the wafer**; a **second liquid dispenser** for flowing a processing liquid onto said **device side** of the wafer; and wherein the acoustic energy transferred to the device side of the wafer having a **frequency and intensity** at the **device side of the wafer** to provide a substantive improvement in the **cleaning performance of the processing liquid** on the device side of the wafer, while also minimizing the associated risk of **damage** to the devices. In fact, Bergman teaches away from claim 1 because Bergman discloses the **device side proximate to the acoustic generator**. Further,

Bergman discloses applying acoustic energy to vaporize liquid chemicals, so that the vapors would contact the device side of the wafer, and thus teaches away from a process liquid being applied to the device side.

Clearly the structure of Bergman fails to read on claim 1 and fails to function as the structure of claim 1, rendering the Bergman structure as an inoperable and non-obvious variation of claim 1. Applicants request that the rejection clearly identify each and every limitation in the prior art of record, as required in MPEP 707.07(d).

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 1-3, 5-11, 15, 18 and 22-25 under 35 U.S.C. § 102(b) as being anticipated by Bergman.

The Examiner has rejected claims 1-3, 5, 8-15, 18, 19 and 22 under 35 U.S.C. § 102(a) as being anticipated by Busnaina, WO 0021692 ("Busnaina"). In light of the amendment, the Examiner's rejections have become moot. Nonetheless, the following remarks regarding the Examiner's rejections and the amended claims may be helpful to expedite prosecution.

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Claim 1 relates to an apparatus for wet processing the device side of individual wafers, comprising: an acoustic energy generator; a wafer bracket for positioning a wafer having a device side and a non-device side over the acoustic generator, wherein the device side of the wafer is distal to the acoustic generator and the non-device side of the wafer is proximate to the acoustic generator; a first liquid dispenser for flowing a first liquid between said acoustic energy generator and said wafer; wherein the first liquid is in extensive contact with both the acoustic generator and the wafer, providing the predominant means of transferring acoustic energy from the acoustic generator to the non-device side of the wafer; a second liquid dispenser for flowing a processing liquid onto said device side of the wafer; and wherein the acoustic energy irradiating the non-device side of the wafer is transferred to the device side of the wafer having a frequency and intensity at the device side of the wafer to provide a substantive improvement in the cleaning performance of the processing liquid on the device side of the wafer, while also minimizing the associated risk of damage to the devices on the wafer due to the sonic energy acting on the device side of the wafer.

In contrast, Busnaina fails to disclose or suggest a second liquid dispenser for flowing a processing liquid onto said device side of the wafer; and wherein the acoustic energy irradiating the non-device side of the wafer is transferred to the device side of the wafer having a frequency and intensity at the device side of the wafer to provide a substantive improvement in the cleaning performance of the processing liquid on the device side of the wafer, while also minimizing the

associated risk of damage to the devices on the wafer due to the sonic energy acting on the device side of the wafer.

Busniana fails to recognize a structure capable of dispensing a second fluid onto the device side of the wafer. In fact, Busniana teaches away from claim 1 by disclosing that the first fluid cover the device side, thus preventing the dispensing of the second fluid onto the device side of the wafer.

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 1-3, 5, 8-15, 18, 19 and 22 under 35 U.S.C. § 102(a) as being anticipated by Busniana.

The Examiner has rejected claims 1-3, 5-11, 15, 19, 22-25, 45, 46 and 52 under 35 U.S.C. § 102(e) as being anticipated by Lorimer, US Patent No. 6,460,552 ("Lorimer"). In light of the amendment, the Examiner's rejections have become moot. Nonetheless, the following remarks regarding the Examiner's rejections and the amended claims may be helpful to expedite prosecution.

Claim 1 relates to an apparatus for wet processing the device side of individual wafers, comprising: an acoustic energy generator; a wafer bracket for positioning a wafer having a device side and a non-device side over the acoustic

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generator, wherein the device side of the wafer is distal to the acoustic generator and the non-device side of the wafer is proximate to the acoustic generator; a first liquid dispenser for flowing a first liquid between said acoustic energy generator and said wafer; wherein the first liquid is in extensive contact with both the acoustic generator and the wafer, providing the predominant means of transferring acoustic energy from the acoustic generator to the non-device side of the wafer; a **second liquid dispenser** for flowing a processing liquid onto said **device side** of the wafer; and wherein the acoustic energy irradiating the non-device side of the wafer is transferred to the device side of the wafer having a **frequency and intensity** at the device side of the wafer to provide a substantive improvement in the **cleaning performance of the processing liquid** on the device side of the wafer, while also minimizing the associated risk of damage to the devices on the wafer due to the sonic energy acting on the device side of the wafer.

In contrast, Lorimer fails to disclose or suggest a second **liquid dispenser** for flowing a processing liquid onto said **device side** of the wafer; and wherein the acoustic energy irradiating the non-device side of the wafer is transferred to the device side of the wafer having a **frequency and intensity** at the device side of the wafer to provide a substantive improvement in the **cleaning performance of the processing liquid** on the device side of the wafer, while also minimizing the associated risk of damage to the devices on the wafer due to the sonic energy acting on the device side of the wafer.

Lorimer fails to recognize a structure capable of dispensing a second liquid onto the device side of the wafer. In fact, Busniana teaches away from claim 1 by disclosing that the second fluid onto the device side of the wafer is not a liquid, but instead a vapor. Furthermore, the apparatus of Lorimer is designed for using ultrasonics for the backside of the wafer, while steam is applied to the device side. The Lorimer apparatus is used for cleaning after a CMP operation, which is a very rough operation on the wafer, and thus would be inoperable as a means of cleaning delicate poly lines, and would clearly damage the devices on the wafer.

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 1-3, 5-11, 15, 19, 22-25, 45, 46 and 52 under 35 U.S.C. § 102(e) as being anticipated by Lorimer.

35 U.S.C. § 103 Rejections

The Examiner has rejected claims 12-14, 16 and 18 under 35 U.S.C. § 103(a) as being unpatentable over Lorimer in view of Busniana.

In light of the amendment, the Examiner's rejections have become moot. In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any

dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 12-14, 16 and 18 under 35 U.S.C. § 103(a) as being unpatentable over Lorimer in view of Busnaina.

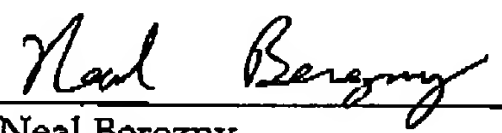
Applicant respectfully submits that the present application is in condition for allowance. If the Examiner believes a telephone conference would expedite or assist in the allowance of the present application, the Examiner is invited to call Michael A. Bernadicou at (408) 720-8300.

Pursuant to 37 C.F.R. 1.136(a)(3), applicant(s) hereby request and authorize the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 C.F.R. 1.16 and 1.17, to Deposit Account No. 02-2666.

Respectfully submitted,

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